7th Grade Science

Monday Sept. 12th 2011

Unit: Cells

Objective / TEK: any of the following…..

illustrate the transformation of energy within an organism such as the transfer from chemical energy to heat and thermal energy in digestion.[7.7B]

demonstrate and illustrate forces that affect motion in everyday life such as emergence of seedlings, turgor pressure, and geotropism.[7.7C]

recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms.[7.12C]

differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole.[7.12D]

compare the functions of a cell to the functions of organisms such as waste removal.[7.12E]

recognize that according to cell theory all organisms are composed of cells and cells carry on similar functions such as extracting energy from food to sustain life.[7.12F]

LSM-PE.2.1.2 Gather data, based on observations of cell functions made using a microscope or on cell descriptions obtained from print material, that can be used as evidence to support the claim that there are a variety of cell types.

LSM-PE.2.1.3 Compare and contrast, using evidence of different cells and essential life functions, the various processes different cells (e.g., plant, fungi, protist, animal) use to accomplish the same life function (e.g., growing, obtaining energy).

LSM-PE2.1.4 Construct a scaled model, based on measurements, and estimates made using a microscope (when possible), that represents the relative sizes of a molecule, a bacterial cell, an animal cell and a virus.

LSM-PE2.2.1 Describe, based on observations of cells made using a microscope and on information gathered from print and electronic resources, the internal structures (and the functions of theses structures) of different cell types (e.g., amoeba, fungi, plant root, plant leaf, animal muscle, animal skin).

LSM-PE.2.2.2 Construct an analogical model (analogy) of the interaction of the internal components of a cell (e.g., working parts of a city, factory, or automobile). Predict and justify, using the model, the impact on the cell or on the organism if one or the components fails to function properly.

LSM-PE.2.2.3 Observe patterns in the concentration of molecules of a solution (e.g., dye in water, tea) or across a membrane. Construct a model of the observed patterns.

LSM-PE.2.2.4 Predict problems that may arise when certain essential molecules cannot enter a cell. Justification is based on the function of the cell membrane and the role of these molecules in carrying out the essential life functions that take place within a cell.

LSM-PE.2.3.1 Give examples of cell types that divide, cell types that do not divide at all, and cell types that divide only under very unusual circumstances.

LSM-PE.2.3.2 Organize and represent information gathered from print and electronic resources to compare the cell cycles of several cell types that undergo cell division. Representation(s) include the frequency of division, the typical duration of the cell cycle, the specialized function of the cell, and any special conditions that stimulate cell division and cell death. Make a claim about, and justify the relationship between, characteristics of cell cycles and the function of the cell.

LSM-PE.2.4.1 Observe and document the development of an organism (e.g., sea urchin). Construct a representation, using appropriate time scale, of the sequence of general stages of cell differentiation that begins immediately after fertilization and ends with the development of a simple multicellular organism. Representation includes major milestones of cell differentiation and growth.

Lesson: Students will…..

present what they have designed.

Closure: I will ask students if any of the presentations helped them with remembering a concept associated with cells.